

Notice of Allowability

Application No.

10/091,432

Examiner

Qutub Ghulamali

Applicant(s)

ASANO, SHIGETAKA

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to RCE filed 4/23/2007.
2. ☒ The allowed claim(s) is/are 1-23.
3. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☒ All b) ☐ Some* c) ☐ None of the:
 1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
 - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☐ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO/SB/08),
Paper No./Mail Date _____
4. ☐ Examiner's Comment Regarding Requirement for Deposit
of Biological Material
5. ☐ Notice of Informal Patent Application
6. ☐ Interview Summary (PTO-413),
Paper No./Mail Date _____
7. ☐ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 04/23/2007 has been entered.

Response to Remarks/Amendments

2. Applicant's remarks/amendments, see pages 9-10, filed 04/23/2007, with respect to the rejection(s) of claim(s) 1, 2, 4-8 and 12-14, have been fully considered and after a further search and examination in light of the remarks/amendment, claims 1-14, 15-23 now indicated allowable.

3. Claims 1-14 and 15-23 allowed.

4. The following is an examiner's statement of reasons for allowance: The prior art of record in combination with other claimed limitations neither teaches nor renders obvious an automatic gain controller comprising:

a first control loop, the first control loop including: a first gain control amplifier (GCA) for amplifying the analog signal in accordance with a first predetermined gain to generate a first amplified analog signal; an analog to digital converter (ADC) connected to the first GCA for analog-to-digital converting the first amplified analog signal to generate a digital signal; an error calculating circuit connected to the ADC for calculating an error between a target value which is set such that the first amplified analog signal substantially covers a full range for an input level of the ADC, and the digital signal to generate an error digital signal in accordance with the error; a digital to analog converter (DAC) connected to the error calculating circuit for digital-to-analog converting the error digital signal to generate a control signal for setting a second predetermined gain; a delay circuit for delaying the analog signal corresponding to a latency occurring in the first control loop to generate a delayed analog signal; and a second GCA connected to the delay circuit and the first control loop for amplifying the delayed analog signal in accordance with the second predetermined gain set by the control signal to generate a second amplified analog signal.

Such limitations as recited in independent claim 15, is neither anticipated nor rendered obvious by the prior art of record.

The prior art of record in combination with other claimed limitations neither teaches nor renders obvious an automatic gain controller comprising: a first analog to digital converter (ADC) for sampling an analog signal to generate a first plurality of sampling values, the first ADC generating a first digital signal in accordance with the first plurality of sampling values; a first average processing circuit connected to the first

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ADC for calculating an average value of the first plurality of sampling values in accordance with the first digital signal to generate a first average value signal indicative of the calculated average value; a first gain selector circuit connected to the first average processing circuit for selecting a first gain for controlling the analog signal in accordance with the average value of the first average value signal, and generating a first control signal in accordance with the selected first gain; a first delay circuit for receiving the analog signal, and delaying the analog signal corresponding to a first latency occurring in the first ADC, the first average processing circuit, and the first gain selector circuit to generate a first delayed analog signal; and a gain switching amplifier connected to the first delay circuit and the first gain selector circuit for amplifying the first delayed analog signal in accordance with the first gain selected by the first control signal to generate a first amplified analog signal.

Such limitations as recited in independent claim 19, is neither anticipated nor rendered obvious by the prior art of record.

Claims 16-18 and 20-23 are allowed by virtue of their dependency to claims noted above.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Contact Information

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

US Patents:

US Patent 6,222,478, to Bright.

US Patent 6,252,464, to Richards et al.

US Patent 6,192,089, to Corleto et al.

US Patent 6,148,045, to Taura et al.

US Patent 5,566,211, to Choi.

US Patent 6,005,889, to Chung et al.

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Qutub Ghulamali whose telephone number is (571) 272-3014. The examiner can normally be reached on Monday-Friday, 7:00AM - 4:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mohammad Ghayour can be reached on (571) 272-3021. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only.

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For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

QG.
July 5, 2007.


MOHAMMED GHAYOUR
SUPERVISORY PATENT EXAMINER